

Manufacturing standard-size hardwood blanks in glued panels or random-width pieces may improve the amount and value of U.S. hardwood exports to the Pacific Rim

# Hardwood blanks expand export opportunities

Princeton, West Virginia

U.S. hardwood exports have assumed an increasingly important role in American foreign trade.

Despite a deteriorating U.S. balance of merchandise trade over the past 10 years, the U.S. share of world exports of wood products increased nearly 31% in that same period.<sup>1</sup> Hardwood lumber exports led the way, increasing from 91 million bd ft in 1970 to 448 million bd ft by 1983—a dramatic increase of nearly 500%.<sup>2</sup>

A review of U.S. hardwood resources suggests that ample supplies exist to meet future increases in demand, provided ways can be found to accommodate a greater variety of grades and species.<sup>3</sup>

Except for relatively modest amounts of hardwood lumber shipped to Japan, in the 1970s most lumber was exported to Canada and Western Europe. Since 1980, however, western Pacific nations (hereafter referred to as the Pacific Rim) have assumed a prominent and growing position in the export market for U.S. hardwood lumber.

According to the U.S. Department of Commerce statistics for 1984, Japan was the Number 2 importer of U.S. hardwood lumber and Taiwan was Number 3.

In this article we will review the latest statistics pertaining to the export of hardwood lumber to the Pacific Rim; discuss possible reasons for the emergence and growth of this market; offer alternatives to rough hardwood lumber (two forms of value-added, hardwood blanks); and develop estimates of prices needed at the mill to earn a 30% return on investment from the manufacture of blanks from a new facility.

## U.S. exports to the Pacific Rim

U.S. hardwood exports of more than 101 million bd ft to the Pacific Rim in

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1984 were 35 times the amount exported in 1973 (Fig. 1). The major importers were Japan and Taiwan. Together, they accounted for over 92% of all U.S. hardwood lumber exports going to the Pacific Rim in 1984. South Korea accounted for about 3%.

As a portion of total U.S. hardwood exports, exports to the Pacific Rim countries in 1973 accounted for just 1.5% of all hardwood lumber exports. Since then, the situation has changed rather dramatically. And today, the Pacific Rim accounts for about 1 in every 4 bd ft of hardwood lumber exported overseas.

Imports by species differ considerably among the major importers (Fig. 2). For instance, in 1984 red oak accounted for over 70% of Taiwan's, about 35% of South Korea's, and about 15% of Japan's imports of hardwood lumber. Similar variation among the three coun-

tries was exhibited with regard to white oak and hard maple.

Species collectively identified as "other" by the U.S. Department of Commerce made up over 60% of Japan's 1984 imports of hardwood lumber. It is believed that this group contains beech, birch, black cherry, elm, yellow poplar, and others.

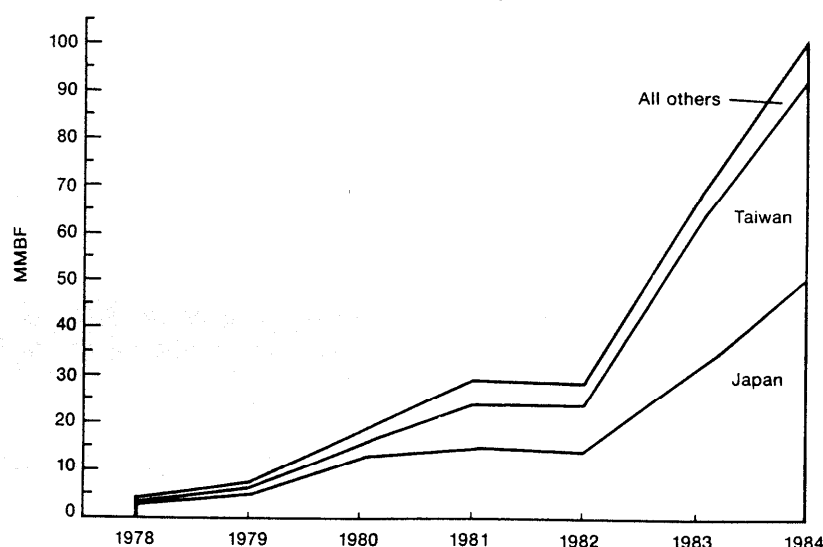
## The Pacific Rim market

Why has there been a sudden rise in lumber exports to the Pacific Rim and, in particular, to Taiwan and South Korea? In the past, the United States was looked upon by these nations mainly as a market for plywood manufactured from logs imported from Southeast Asia.

However, increasing log export restrictions imposed by Malaysia, Indonesia and the Philippines have precipitated a shift in emphasis within Taiwan and South Korea away from the manufacture of plywood and toward the manufacture of furniture.<sup>4</sup>

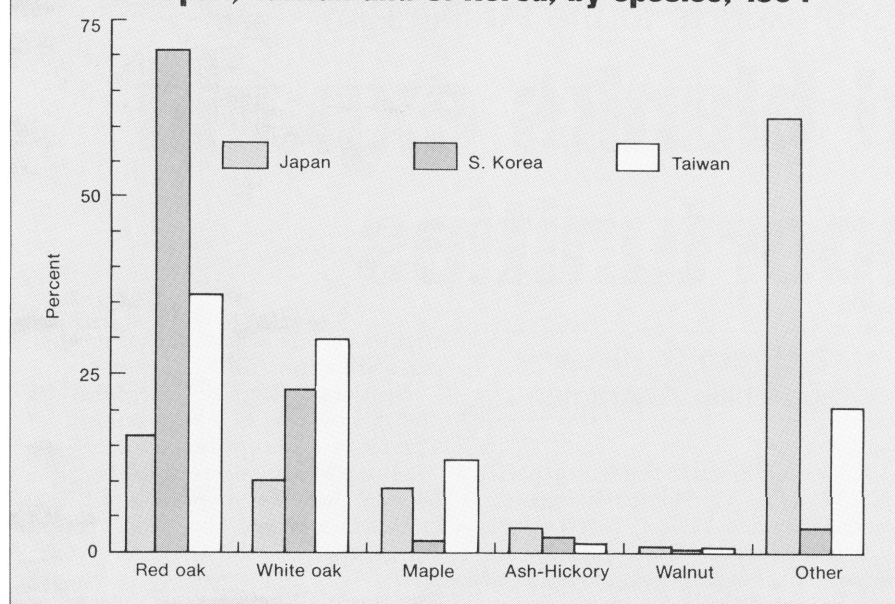
Consequently, the United States now is looked to both as a large, reliable source of raw material and as a market

FIG. 1—U.S. hardwood lumber exports to the Pacific Rim (1978-1984)



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**FIG. 2—U.S. hardwood lumber exports to Japan, Taiwan and S. Korea, by species, 1984**



for finished products such as fully machined furniture parts, finished furniture parts, and knock-down furniture pieces.

The recent economic recovery in the United States undoubtedly has helped Taiwan to enter the U.S. furniture market. Finished and semi-finished products from Taiwan also are marketed in Japan, Europe and the Middle East. However, because of the strong ties with the U.S. market, it is believed that the Taiwanese market for hardwood lumber largely will reflect the economic well-being and species preference of the American consumer.

The Japanese market for U.S. hardwoods is more closely tied to its own market for finished products and internal economic conditions.

Japanese interests in American hardwoods first occurred in the late 1960s and early 1970s when interest in bowling "rolled" across the land, and large amounts of maple were imported for lane construction.

Current Japanese interest in other species undoubtedly reflects several newer developments including: the log export restrictions of Malaysia and Indonesia; the increasing demand pressure on Japan's limited oak resource; and an increase in the use of solid-wood furniture.<sup>5</sup>

South Korean interest in American lumber and wood products parallels that of Taiwan, but on a much reduced scale. Consequently, the strength of this market also is likely to reflect economic and market conditions inside the U.S.

The close relationship between the Taiwanese and South Korean markets for U.S. hardwoods and the American market for finished goods offers a mixed

blessing to U.S. manufacturers, as well as a unique opportunity.

On the one hand, the manufacture of finished products for U.S. consumption continues to place these countries in direct competition with U.S. furniture manufacturers.

However, on the other hand, it represents a market for American lumber and dimension producers that otherwise might not exist. Of particular interest is the opportunity this market offers for the manufacture and sale of value-added hardwood blanks in standard sizes.

#### Hardwood blanks in standard sizes

Hardwood blanks are rough-dimension parts of specific size. They can be individual pieces of specific length, width and thickness, or glued pieces or panels of specific length, width and thickness. Glued panels may be composed of a number of individual random-width pieces. Hardwood blanks are not new to the wood industry; however, production of blanks in standard sizes is new.

The standard-size hardwood blank concept was developed as a result of an extensive survey of the parts requirements of 32 major U.S. manufacturers of furniture and kitchen cabinets.<sup>6</sup>

The survey found that, taken collectively, the respondents utilized thousands of individual parts of different sizes. However, subsequent analysis revealed that if parts were grouped into specified length categories and panels of set width were manufactured, all the individual-sized parts identified in the survey could be ripped from no more than a dozen blank sizes, and waste could be kept to a minimum.

The concept behind the standard sizes is universal. However, while the actual standard-size blank dimensions found in the earlier survey of U.S. manufacturers should be appropriate to the Taiwanese and South Korean markets because they manufacture predominately American-style furniture, it is doubtful that these sizes are suitable to the situation in Japan. Thus, a necessary first step in developing the blanks alternative for Japan is a survey of the industry's parts usage.

The standard-size blank concept opens up many opportunities and seems particularly well suited to meet the demands of the international marketplace. Trade in blanks would eliminate many of the problems that currently exist because of foreign market misunderstanding of U.S. lumber grades. Furthermore, by dealing in blanks, only usable material would be traded between supplier and demander.

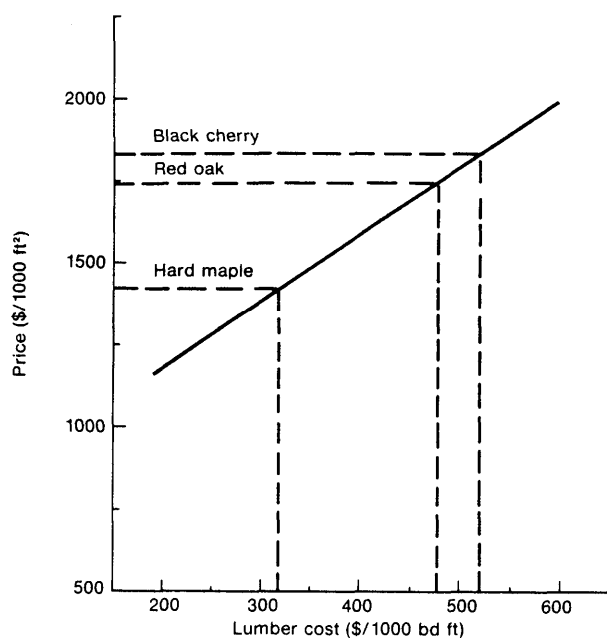
Blanks facilitate an increase in the use of No. 1 and No. 2 Common hardwood lumber and material from other nontraditional sources.<sup>7</sup> This not only means better resource utilization, but also it expands the resource base available for export and takes some of the pressure off the more limited supplies of higher grade material.

Standard-size blanks can be produced in quantities that permit higher yields than would be realized if cutting were constrained by requirements needed to fill a specific order. Higher yields mean lower cost per unit of usable mate-

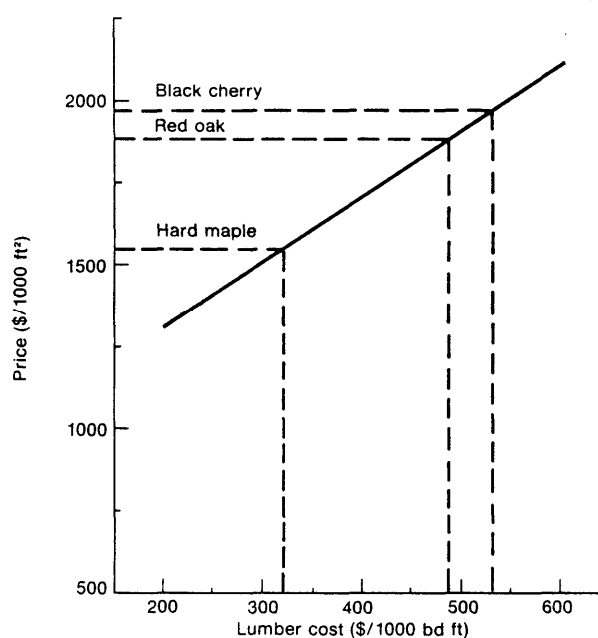
**TABLE 1—Lumber and transportation costs**

Species	Lumber cost			Transportation	Total
	No. 1 Common	No. 2 Common	Weighted ave.		
Red oak	590	225	444	40	\$484
Black cherry	605	305	485	40	\$525
Hard maple	332	205	281	40	\$321

**FIG. 3—Prices needed for 30% return on investment for random-width blanks (examples for black cherry, red oak and hard maple)**



**FIG. 4—Prices needed for 30% return on investment for glued panel blanks (examples for black cherry, red oak and hard maple)**



rial. Per unit cost is lowered again by shipping standard-size blanks instead of lumber, as the proportion of usable product in shipment is increased substantially.

Perhaps most important, blanks permit U.S. manufacturers to ship a higher valued product and to keep jobs at home for American labor.

Opportunities may exist for the production and marketing of standard-length blanks in either random-width piece form or as glued panels. By offering blanks in random-width pieces, color and grain match in panels can be left up to the ultimate user. Random-width pieces can be produced cheaper than glued panels, as gluing activities are eliminated.

### Blank price estimates

To get an approximation of the price at which glued panels and random-width pieces would sell, we simulated their manufacture by utilizing a plant design previously developed at the Forestry Sciences Laboratory at Princeton, W. Va.<sup>5</sup>

The plant design incorporates conventional technology and assumes a 60/40 mix of No. 1 and No. 2 Common lumber.

In addition to the two product types, we also considered the manufacture of blanks in three species. Thus, a total of six product type/species combinations was evaluated.

A major cost in the manufacture of blanks in either random-width piece or glued panel form is lumber. Lumber

prices for 4/4 red oak, black cherry and hard maple as of Sept. 1, 1984, were obtained from the *Hardwood Market Report*.

In addition, we included \$40 per thousand bd ft to cover transportation costs to the mill (see Table 1.)

Our analyses focused on determining price estimates for blanks, FOB mill, that would ensure a 30% return on investment after taxes, as measured by the internal rate of return. The prices are based on a 10-year uniform amortization of a new plant. If existing facilities could be utilized, prices probably would be lower.

Prices ranged from about \$1420 per thousand ft<sup>2</sup> to \$1825 per thousand ft<sup>2</sup> for random-width pieces and from about \$1550 per thousand ft<sup>2</sup> to \$1955 per thousand ft<sup>2</sup> for glued panels, depending on species (Figs. 3 and 4). We believe these prices are competitive with those currently being offered for rough, random-width pieces and edge-glued dimension.

### Conclusion

It is clear that the Pacific Rim has become a major market for hardwood lumber from the United States. We believe that with a little effort on the part of industry, associations and government, hardwood blanks can assume a substantial share of this market.

From resource, trade and employment perspectives, the successful introduction of these higher value-added products in overseas markets could be quite beneficial. ■

### Literature Cited

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